

ROCKY FLATS PLANT
EMD OPERATING
PROCEDURES MANUAL

Manual No.: 5-21000-OPS-GT
Procedure No.: Table of Contents, Rev 14
Page: 1 of 4
Effective Date: 01/20/92
Organization: Environmental Management

THIS IS ONE VOLUME OF A SIX VOLUME SET WHICH
INCLUDES:

VOLUME I: FIELD OPERATIONS (FO)
VOLUME II: GROUNDWATER (GW)
VOLUME III: GEOTECHNICAL (GT)
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| GT.01 | Logging Alluvial and Bedrock Material | 1 | 08/30/91 |
| DCN 91.01 | Recording lithologic descriptions and securing core boxes | 1 | 11/15/91 |
| DCN 91.02 | Clarification of log approval for multi-use wells | 1 | 12/03/91 |
| GT.02 | Drilling and Sampling Using Hollow Stem Auger Techniques | 1 | 08/30/91 |
| DCN 91.01 | Superseded by DCN 92.01 | 1 | 01/20/92 |
| DCN 91.02 | Correction of well location for low Alluvial thickness | 1 | 11/06/91 |
| DCN 91.03 | Ten foot long core barrels | 1 | 11/15/91 |
| DCN 92.01 | Clarify unconsolidated core sample requirements | 1 | 01/20/92 |
| GT.03 | Isolating Bedrock from Alluvium with Grouted Surface Casing | 1 | 08/30/91 |
| DCN 91.01 | Superseded by DCN 91.03 | 1 | 12/12/91 |
| DCN 91.02 | Superseded by DCN 92.01 | 1 | 01/20/92 |

DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

ADMIN RECORD

A-SW-000960

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| DCN 91.03 | Change in criteria for cement grouting | 1 | 12/12/91 |
| DNC 92.01 | Grout procedure clarification | 1 | 01/20/92 |
| DCN 91.04 | Depth of casing emplacement | 1 | 12/17/91 |
| DCN 91.05 | Addition of Grout Ports | 1 | 12/19/91 |
| GT.04 | Rotary Drilling and Rock Coring | 1 | 08/30/91 |
| DCN 91.01 | Superseded by DCN 92.02 | 1 | 01/20/92 |
| DCN 91.02 | Superseded by DCN 92.01 | 1 | 01/20/92 |
| DCN 91.03 | Superseded by DCN 91.04 | 1 | 12/17/91 |
| DCN 91.04 | Clarification of the use of super gel-x | 1 | 12/17/91 |
| DCN 92.01 | Clarification of measuring tape decontamination requirements | 1 | 01/20/92 |
| DCN 92.02 | Clarification of core barrel decontamination | 1 | 01/20/92 |
| GT.05 | Plugging and Abandonment of Boreholes | 1 | 08/30/91 |
| DCN 91.01 | Superseded by DCN 92.01 | 1 | 01/20/92 |
| DCN 92.01 | Surface casing classification | 1 | 01/20/92 |
| GT.06 | Monitoring Wells and Piezometer Installation | 1 | 08/30/91 |
| DCN 91.01 | Superseded by DCN 92.01 | 1 | 01/20/92 |
| DCN 91.02 | Superseded by DCN 92.02 | 1 | 01/20/92 |
| DCN 91.03 | Superseded by DCN 91.06 | 1 | 11/08/91 |
| DCN 91.04 | Low Alluvial thickness wells | 1 | 11/06/91 |
| DCN 91.05 | Superseded by DCN 91.08 | 1 | 11/15/91 |

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| DCN 91.06 | Change in filter pack guidance | 1 | 11/08/91 |
| DCN 91.07 | Decontamination for site-wide geological chracterization | 1 | 11/15/91 |
| DCN 91.08 | Figure replacement (GT.6-1) | 1 | 11/15/91 |
| DCN 91.09 | Sampling with center bit drilling | 1 | 12/03/91 |
| DCN 92.01 | Change in penetration depth into bedrock | 1 | 01/20/92 |
| DCN 92.02 | Specification of auger size | 1 | 01/20/92 |
| GT.07 | Logging and Sampling of Test Pits and Trenches | 1 | 08/30/91 |
| GT.08 | Surface Soil Sampling | 1 | 08/30/91 |
| DCN 91.01 | Clarification supplementation of GT.08 - Surface Soil Sampling | 1 | 11/26/91 |
| DCN 92.01 | Soil core sampling revision | 1 | 01/02/92 |
| GT.09 | Soil Gas Sampling and Field Analysis | 1 | 08/30/91 |
| GT.10 | Borehole Clearing | 1 | 08/30/91 |
| GT.11 | Plugging and Abandonment of Wells | 1 | 08/30/91 |
| DCN 92.01 | Clarification of handling of contaminated/decontaminated surface pad materials | 1 | 01/20/92 |
| GT.15 | Geophysical Borehole Logging | 1 | 08/30/91 |
| DCN 91.01 | Superseded by DCN 92.01 | 1 | 01/20/92 |
| DCN 92.01 | Clarification of hole logging requirements | 1 | 01/20/92 |
| GT.17 | Land Surveying | 1 | 08/30/91 |
| GT.18 | Surface Geophysical Surveys | 1 | 08/30/91 |
| GT.19 | Field Gas Chromatographs | 1 | 08/30/91 |

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| GT.20 | Procedures for Soil Interstitial Water Sampling and Sampler Installation | 1 | 08/30/91 |
| GT.21 | Cone Penetrometer Testing | 0 | 12/19/91 |

ENVIRONMENTAL MANAGEMENT DOCUMENT CHANGE NOTICE (DCN)

Procedure Number 5-21000-OPS-GT.3 Rev. 1

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| | | |
|--|----------------------------|---|
| Title Isolating Bedrock from Alluvium with Grouted Surface Casing | Date (10-22-91) 1-15-92 | DCN Number 5-21000-OPS-GT.3 92.01 |
| Expires <u>4-22-92</u> Procedure Revision Required <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Scope Limitation <u>none</u> | | |

| Item Number | Page | Step or Paragraph | Changes (Use DCN CONTINUATION SHEET for Additional Space) |
|-------------|--------|-------------------|--|
| 1 | 8 of 9 | 5.3 paragraph 1 | Replace the first sentence with: Surface casing will be installed by placing the casing into the borehole, filling the casing with cement and then forcing the cement from within the casing by pushing a rubber plug down the casing thus displacing the cement out through cement ports at the bottom of the casing. |
| 2 | 8 of 9 | 5.3 part 2 | Delete this section. |
| 3 | 8 of 9 | 5.3 part 3 | Renumber this to part 2. |
| 4 | 8 of 9 | 5.3 part 4 | Renumber this to part 3. Insert "through the augers" at the end of the first sentence. |
| 5 | 8 of 9 | | Insert as part 4: Remove the augers and pump the cement mixture into the casing using a tremie pipe until undiluted cement is present at the top of the casing. |
| 6 | 8 of 9 | 5.3 part 5 | Remove the first part of the first sentence where it states: "Once the casing is at the bottom of the borehole.". Change "force it down to the bottom of the casing by using drill rods..." to "force it down to the bottom of the casing by using drill rods or water pressure." Add to the end of the paragraph "Enough cement will be used to ensure that cement will rise to ground level when displaced from casing." |

Justification (Reason for Change - Provide Numbers To Reference Corresponding Items Above)

Pumping grout down the hole after placing casing ensures that casing is at the bottom of the borehole, and minimizes borehole and casing problems.

| Concurrence | Organization | Req | Date | Concurrence | Organization | Req | Date |
|--------------------|--------------|-----|---------|--------------------|--------------|-----|---------|
| <i>[Signature]</i> | QAPM | X | 1/20/92 | <i>[Signature]</i> | User | X | 1/15/92 |
| <i>[Signature]</i> | EOM | X | 1/15/92 | | USER | X | |
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|---|------------------|--|----------------------------------|-------------|
| Approval of Responsible Manager <i>[Signature]</i> | Date 01/17/92 | Is Posting Req'd? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | If Yes, By What Date? 1-22-92 | Date Posted |
|---|------------------|--|----------------------------------|-------------|